

Notice of Allowability

Application No.

09/902,277

Examiner

Laura M Schillinger

Applicant(s)

SANDHU ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 4/14/04.
2. ☒ The allowed claim(s) is/are 51-58.
3. ☒ The drawings filed on 09 July 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

CARL WHITEHEAD, JR.
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

DETAILED ACTION

Examiner's Amendment

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Jennifer Taylor on 4/14/04.

The application has been amended as follows:

51. A method of forming a bottom-gated thin film transistor comprising the following steps:
 - forming a transistor gate;
 - forming a polycrystalline thin film transistor layer over the transistor gate;
 - forming a fluorine-containing layer proximate the polycrystalline thin film transistor layer, the fluorine-containing layer comprising tungsten;
 - transferring fluorine into the polycrystalline thin film transistor layer from the fluorine-containing layer, the transferred fluorine passivating the polycrystalline thin film transistor layer;
 - and
 - incorporating the passivated polycrystalline thin film transistor layer into a bottom-gated thin film transistor construction, at least some of the transferred fluorine being present at grain boundaries of the passivated polycrystalline thin film transistor layer in the bottom-gate thin film transistor construction.

Allowable Subject Matter

Claims 51-58 are allowed.

The following is an examiner's statement of reasons for allowance:

In reference to claim 51, Tseng et al ('802) teaches a method comprising:

Forming a gate (Col.2, lines: 45-55)

Forming a polycrystalline TFT layer over the gate (Col.2, lines: 45-55)

Forming a fluorine containing layer proximate to the polycrystalline TFT layer, the fluorine layer comprising W (Col.2, lines: 45-55) and

Transferring F into the polycrystalline TFT layer from the F containing layer (Col.2-3, lines: 60-5), the transferred F passivating the polycrystalline TFT layer in the bottom gated TFT (Col.3 (lines: 45-55); and

incorporating the passivated polycrystalline thin film transistor layer into a bottom-gated thin film transistor construction (Fig.3)

However, Tseng fails to teach Applicant's amended limitation, at least some of the transferred fluorine being present at grain boundaries of the passivated polycrystalline thin film transistor layer in the bottom-gate thin film transistor construction.

Rather, Tseng teaches that the halogen atoms are diffused from the polycrystalline silicon layer and into the gate oxide layer, therefore the halogen atoms are not present at the grain boundaries of the passivated polycrystalline silicon at the time the bottom gated TFT construction is complete. Consequently, claim 51 is allowed and claims 52-54 which act only to

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further narrow the scope of claim 51 are deemed allowable. Claim 55 is also deemed allowable for the same reasons, claim 55 recites that the fluorine is retained within the polycrystalline thin film transistor layer in the bottom gated thin film construction. For identical reasons stated above, claim 55 is therefore also considered to be allowable over prior art and dependent claims 56-58 which act only to further narrow the scope of claim 55 are also deemed allowable over prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura M Schillinger whose telephone number is (571) 272-1697. The examiner can normally be reached on M-T, R-F 7:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl W Whitehead, Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LMS

4/15/04